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BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF HAWAII

----- In the Matter of -----  
  
PUBLIC UTILITIES COMMISSION  
  
Instituting a Proceeding to Investigate the  
Implementation of Feed-in Tariffs  
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) PUC Docket No. 2008-0273  
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PUBLIC UTILITIES  
COMMISSION

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SOPOGY'S  
  
REPLY TO POST-HEARING OPENING BRIEFS  
  
AND  
  
CERTIFICATE OF SERVICE

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Sopogy Inc. ("Sopogy") respectfully offers its Reply Brief regarding the implementation of feed in tariffs for Hawaiian Electric Company, Inc., Maui Electric Company Ltd. and the Hawaii Electric Light Company, Ltd. (collectively: HECO Companies). Specific comments are made regarding the Opening Briefs submitted by the following parties: HECO and the Consumer Advocate ("HECO/CA"); the Department of Business, Economic Development & Tourism ("DBEDT"); the Solar Alliance & Hawaii Solar Energy Association ("SA/HSEA"); and Zero Emissions LLC ("Zero Emissions").

**Comments on DBEDT Opening Brief**

Sopogy respectfully disagrees with DBEDT's position stated on pages 62-63 of their Opening Brief that Renewable Energy Credits (RECs) should not be valued as part of established FiT rates and yet that these green attributes should also belong to HECO as part of the FiT contract. These green attributes have clearly been shown to have a real economic value that can be calculated based on a national REC market, and pending Federal legislation could drastically increase the value of such green attributes through a National RPS standard and/or a carbon cap and trade or carbon tax program in the U.S.

Sopogy maintains its position that RECs should belong to the developer. The purpose of RECs is to provide an additional economic incentive for the development and deployment of additional renewable energy project in order to offset developer risks. Additionally, RECs are not required to meet Hawaii's mandated Renewable Portfolio Standard (RPS) so there is no

justification for these RECs to go to the utility at no cost and by default. If the utility desires to acquire these RECs, they should do so by paying an established fair market value either within the established FiT rate or through a separate transaction with the project developer.

#### **Comments on SA/HSEA Opening Brief**

Sopogy appreciates the efforts made by SA/HSEA to provide clarity as to how interconnection costs could be clearly assigned between the utility and the project developer. However, Sopogy disagrees with the Interconnection Features and Standards for Tier 3 projects as depicted on pages 18-19 of the SA/HSEA Opening Brief. Such stringent requirements for projects as small as 250 kW on the outer islands would make such projects cost prohibitive, thereby removing a substantial range of distributed generation projects from consideration by project developers. Even for projects in the 1-5 MW range (for Oahu), meeting requirements such as dispatchability would add significant cost to such projects while providing a rather limited benefit to the overall grid, again making them cost prohibitive and thereby leaving a gap in the market for distributed generation renewable energy solutions. Sopogy believes that these ancillary services should be borne by the utility as part of their efforts to upgrade the grids to handle larger levels of renewable energy penetration. An additional rate on top of the FiT rate could also be offered to project developers that desire to provide such ancillary services at the project level.

#### **Comments on Zero Emissions Opening Brief**

On page 34 of its Opening Brief, Zero Emissions states, "A project shouldn't be eligible to receive the FiT rate if the project owner receives the Hawaii renewable energy technology Income tax credit." While the future of Hawaii tax credits is in question and hence may make it

difficult to set rates based on current policy, Sopogy does not support the position that claiming the state tax credits should prohibit developers from qualifying for the FiT rate. The states that have seen the greatest levels of renewable energy penetration have been those that enacted state level measures that, when combined with Federal incentives, create economically attractive conditions for renewable project development. Willingness on the part of the State government to promote the renewable energy industry, possibly for broader reasons that attainment of clean energy such as economic development and job creation, should not be discouraged by the utility's FiT program.

### **Comments on HECO/CA Opening Brief**

**General Comments:** Sopogy strongly believes that the HECO/CA Proposed FIT is not in line with the stated objectives and agreements under the Hawaii Clean Energy Initiative for moving the State decisively and irreversibly away from imported fossil fuels. This “business as usual” approach relies on the standard set of arguments for why the state can’t move forward instead of recognizing that significant changes will have to be made to the utility grid infrastructure to accommodate significant renewable energy penetration if the State is to achieve energy security, price stability and independence from fossil fuels. While there are many issues that still must be addressed to bridge the gap between the HECO/CA proposal and the positions of the intervenor parties, Sopogy

**Project Size Limits:** For Concentrating Solar Power (CSP), HECO/CA propose project size limits of 500 kW on Oahu, Maui and Hawaii Island and 100 kW for Lanai and Molokai. As Sopogy stated in the hearings, the small scale CSP (referred to as MicroCSP) systems do require a certain economy of scale and are currently suited to project sizes between 1 - 20 MW. Therefore, the HECO/CA project size caps effectively block CSP technologies from participating in the initial phase of the FiT program, effectively making the FiT a PV centric program for at least the first two years of implementation.

Like PV, CSP is a proven solar technology that delivers power when valued most by the utility – during peak load periods. CSP also has a track record in the United States of delivering reliable utility scale power for over three decades (SEGS). The enabling technologies – the Organic Rankine Cycle (ORC) heat engines – are also mature and proven technologies with decades of experience in solar, waste heat and geothermal applications (as demonstrated by the Puna Geothermal Venture on the Hawaii Island).

CSP also offers unique advantages over PV in that it has a smoother power delivery profile due to thermal lag within the system and because of the cost effective means of incorporating thermal buffering to provide increased levels of performance during intermittent solar conditions. CSP also provides the unmatched advantage of being able to incorporate cost effective, large scale thermal storage into its projects to extend or shift power delivery beyond the solar day. Given Hawaii's late afternoon / early evening peak loads, this could be of great benefit for peak shaving.

These stable and predictable power delivery characteristics of CSP make it a grid friendly renewable energy source and one that is well suited for incorporation into Hawaii's relatively small grid systems. Given these benefits, Sopogy believes that CSP should not only be included in the initial phase of the FiT but that project size limits for this technology should be increased in this phase to ensure that these kinds of projects can quickly prove their benefit for Hawaii's clean energy needs. As stated in Sopogy's opening brief, Sopogy believes that CSP technology (as well as the other technologies approved for the initial FiT) should have project size caps in the initial phase of up to 5 MW on Oahu, up to 3 MW on Maui and the Hawaii Island, and up to 1 MW for Molokai and Lanai.

HECO/CA also appear to support the belief that projects in sizes of up to 5 MW are possible on Oahu, as stated on pages 40-41 of the HECO/CA Opening Brief. Here HECO/CA state that ... "because of the greater flexibility provided by the Oahu grid, HECO supports the notion that a FiT can be established for larger projects of certain technologies on Oahu, perhaps up to the 5

MW threshold for the Framework for Competitive Bidding.” HECO/CA caveat this statement with “Before establishing such a FiT, however, one must establish appropriate energy pricing for such projects and address interconnection requirements, as projects of this size have not heretofore been developed in Hawaii.” The concerns raised by HECO/CA regarding establishing appropriate energy pricing and interconnection requirements will by matter of course be addressed in the establishment of the FiT tariff and standard offer contract, therefore Sopogy asks the Commission to establish the project caps on Oahu at 5 MW given that the technology and pricing solutions are within reach for projects in the size range.

It is of interest to also note the inconsistency of the HECO/CA argument regarding interconnection limitations for renewable projects on Oahu under FiT and the HECO/CA proposed project size limits for PV Host and for competitive bid PV projects under consideration. While the HECO/CA FiT proposal calls for project size caps of 500 kW on Oahu, they also propose allowing projects of up to 1 MW for PV Host (page 18 HECO/CA) and propose competitive bidding of multiple PV projects on Oahu for up to 5 MW in size (pg. 41). If these limits are possible under the PV Host and Competitive Bidding frameworks, then it stands to reason that a similar project size cap of 5 MW should also be able to be applied to FiT projects on Oahu in the program's initial phase. Sopogy again reiterates its position that project size caps should be set at 5 MW on Oahu during the initial phase of the FiT and, as Sopogy stated in its Opening Brief, that these project size caps should double in size at each 2 year review period.

**Competitive Bid Process to Set FiT Pricing:** Sopogy disagrees with the HECO/CA recommendation that competitive bidding of PV projects up to 5 MW on Oahu will provide a sound pricing basis for a future FiT. The competitive bidding framework has already proven to be a time consuming process, and relying on completion of this mechanism before setting FiT pricing would result in significant delays in a FiT program rollout. This could in turn result in the loss of the 2010 window for developers to claim the Federal renewable energy investment tax

credits as a refundable credit, thereby missing a significant opportunity to help stimulate development and local economic activity.

As an alternate method, Sopogy recommends that the Commission hire an independent consultant to gather and aggregate the required industry pricing data in order to determine appropriate FiT rates by technology and by island.

**Curtailment:**

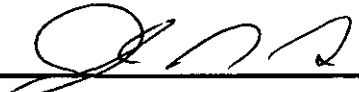
HECO/CA addresses the issue of curtailment on pages 63-66 of their Opening Brief. HECO/CA use the issue of curtailment as further justification for small project sizing, thereby avoiding the real issues of needing to improve the system's ability to take larger amounts of renewable energy. Sopogy believes that FiT projects should be paid for any curtailment, thereby creating a necessary incentive for the utility to aggressively upgrade grid infrastructure to accommodate the targeted levels of renewable energy penetration needed to achieve Hawaii's RPS standards and HCEI goals. One possible option for addressing curtailment that Sopogy would support is that presented by Tawhiri.

Sopogy may also be willing to accept penetration caps on technologies that deliver power during off peak periods during the initial phases of the FiT program in order to minimize curtailment issues, assuming that the utility is working toward incorporating incentives for project level storage and/or improving the grids in order to best make use of all of the renewable energy available.

As mentioned in Sopogy's Opening Brief, the proper establishment of differentiated rates for peak and off-peak power delivery would create an appropriate economic incentive for project developers to incorporate storage options for projects subject to curtailment during off-peak load periods. If time-of-use rates are not feasible, then the Commission should strongly consider adding either a storage feed-in tariff similar to the Battery FiT proposed by Clean Energy Maui, LLC or establishing a rate adder for projects that provide storage options.

**Grid Penetration:** The levels of renewables that can be incorporated into the distribution and transmission level circuits on each island are not well understood, not even by the HECO Companies themselves. While grid stability issues are often raised by the utility, there are also grid benefits from distributed generation renewables that must also be recognized. Given the critical nature of this issues for establishing a realistic and effective FiT program for Hawaii, Sopogy asks that the Commission have a grid study conducted for all islands under the HECO Companies in order to reach a clear understanding at both the system and circuit levels as to how much renewable energy can be incorporated into the systems. This study should identify the current limiting factors and then identify a plan of action for incorporating solutions that will allow for increasing penetration levels of renewable energy to meet Hawaii's RPS requirement and HCEI energy goals.

DATED: June 26, 2009, Honolulu, Hawaii

  
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